PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 9648WO/AT/FB	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2005/000222	International filing date *(day/month/year)* 18-02-2005	Priority date *(day/month/year)* 20-02-2004

International Patent Classification (IPC) or national classification and IPC
See Supplemental Box

Applicant
ABB Technology AG et al

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of   6   sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

    a. ☒ *(sent to the applicant and to the International Bureau)* a total of 6 sheets, as follows:

       ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

       ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

    b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))

       _____ , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

    ☒ Box No. I   Basis of the report

    ☐ Box No. II   Priority

    ☒ Box No. III   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

    ☐ Box No. IV   Lack of unity of invention

    ☒ Box No. V   Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

    ☐ Box No. VI   Certain documents cited

    ☐ Box No. VII   Certain defects in the international application

    ☐ Box No. VIII   Certain observations on the international application

Date of submission of the demand 19-09-2005	Date of completion of this report 23-05-2006
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Form PCT/IPEA/409 (cover sheet) (April 2005)

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of: Cover sheet

International patent classification (IPC)

G06F 17/30 (2006.01)
G06Q 50/00 (2006.01)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000222

Box No. I	Basis of the report

1. With regard to the **language**, this report is based on:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____ ,
which is the language of a translation furnished for the purposes of:

☐ international search (Rules 12.3(a) and 23.1(b))

☐ publication of the international application (Rule 12.4(a))

☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

    pages   1-20 _____ as originally filed/furnished

    pages* _____ received by this Authority on _____

    pages* _____ received by this Authority on _____

☒ the claims:

    pages _____ as originally filed/furnished

    pages* _____ as amended (together with any statement) under Article 19

    pages*   21-26 _____ received by this Authority on   2006-05-15 _____

    pages* _____ received by this Authority on _____

☒ the drawings:

    pages   1-19 _____ as originally filed/furnished

    pages* _____ received by this Authority on _____

    pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

    ☐ the description, pages _____

    ☐ the claims, Nos. _____

    ☐ the drawings, sheets/figs _____

    ☐ the sequence listing *(specify)*: _____

    ☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

    ☐ the description, pages _____

    ☐ the claims, Nos. _____

    ☐ the drawings, sheets/figs _____

    ☐ the sequence listing *(specify)*: _____

    ☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

Form PCT/IPEA/409 (Box No. I) (April 2005)

| Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application

☐ claims Nos. _____

because:

☐ the said international application, or the said claims Nos. _____
relate to the following subject matter which does not require an international preliminary examination *(specify)*:

. . . / . . .

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. _____
are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. _____ are so inadequately supported
by the description that no meaningful opinion could be formed *(specify)*:

☒ no international search report has been established for said claims Nos. 22-26, 29-32 _____

☐ a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

    ☐ furnish a sequence listing on paper complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Preliminary Examining Authority in a form and manner acceptable to it.

    ☐ furnish a sequence listing in electronic form complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Preliminary Examining Authority in a form and manner acceptable to it.

    ☐ pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rules 13*ter*.1(a) or (b) and 13*ter*.2.

☐ a meaningful opinion could not be formed without the tables related to the sequence listings; the applicant did not, within the prescribed time limit, furnish such tables in electronic form complying with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions, and such tables were not available to the International Preliminary Examining Authority in a form and manner acceptable to it.

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in electronic form only, do not comply with the technical requirements provided for in the Annex C-*bis* of the Administrative Instructions.

☐ See Supplemental Box for further details.

Form PCT/IPEA/409 (Box No. III) (April 2005)

Box No. V   **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-21, 27-28	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-21, 27-28	NO
Industrial applicability (IA)	Claims	1-21, 27-28	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The claimed invention relates to a method for adding a new object (in an electrical power network) in a first system and then also adding it, as well as establishing necessary links, to other relevant systems.

Documents cited in the International Search Report:

D1: US 6636875 B1
D2: WO 0246873 A2
D3: US 6636873 B1
D4: WO 9735265 A1

D1 discloses a system for synchronizing related data elements in disparate storage systems. The system is adapted to receive new data elements in one system, to add the relevant parts of the data elements to other systems and to establish the necessary links (column 10, lines 25-63).

D2-D4 are other prior art methods for replicating data.

The invention according to new (filed 2006-05-15) independent claims 1, 15, 16 and 17 relates to existing systems in power networks, while D1 relates to another technical field. However, the invention per se is directed towards a more general problem, namely to add data in one system and to replicate into related systems as well as updating links between the systems. It is obvious for a person skilled in the art to apply the technique disclosed by D1 on any set of related data systems. Further, the independent claims contain a listing of administrative actions for handling data.

.../...

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of: Box V

However, there are not any technical features defined, which contributes to the solution of any technical problem. Consequently, the invention according to new independent claims 1, 15, 16 and 17 is not considered to involve an inventive step.

The remaining claims add a listing of known power network systems, data communication standards and actions obvious for a person skilled in the art, as well as a number of non-technical features. These additions do not lead to any surprising solution of any technical problem. Thus, the invention according to claims 2-14, 18-21 and 27-28 is not considered to involve an inventive step.

The invention according to new claims (filed 2006-05-15) 1-21 and 27-28 is not considered to involve an inventive step.

CLAIMS .

1.   A method for retrieving and accessing data stored in a
plurality of systems arranged for operating part of one or
more electrical power networks which method comprises adding a
new object into a first system, **characterised** by subsequently
adding a copy of the new object into a plurality of relevant
systems, establishing automatically a connection between said
relevant systems and the new object, replicating data related
to the new object to other systems and relevant systems, and
establishing the consistency of accessed or retrieved data in
the relevant systems by means of mapping the new object using
a model based on a structured text document, and thereafter
checking the consistency of attributes of the accessed or
retrieved data by identifying the new or a given object and/or
copies of the new or a given object and comparing attributes
of all copies of the same new or given object.

2. A method according to claim 1, **characterised** by maintaining
object connections (links) for the new object and for any
other object accessed, retrieved and/or stored by a SCADA
system as well as by any system from the list of: GIS system,
ERP system, CMMS system, PM system, WO system,WMS system.

3. A method according to claim 2, **characterised** by mapping the
new object and/or copies of the new object using a model based
on a CIM/XML document.

4. A method according to claim 2, **characterised** by mapping
attributes of the new object and/or copies of the new object
using a model based on a CIM/XML document.

5. A method according to claim 1, **characterised** by
establishing the automatic connection or connections between
copies of the same object in different systems means of a
CIM/XML layer (1).

6. A method according to claim 1, **characterised** by mapping the
new object by means of a virtual asset register (10) dependent

AMENDED SHEET

on the CIM/XML layer (1) and/or mapping.

7. A method according to claim 1, **characterised** by selecting an object by means of an identifier in any said relevant system.

8. A method according to claim 7, **characterised** in that the identifier may be a URI (Uniform Resource Identifier) compatible as an identifier with a standard for RDF (Resource Description Framework).

9. A method according to claim 4, **characterised** by accessing one or more object attributes of the new object and changing an object attribute of the new object in a source system (owner, the first system).

10. A method according to claim 4, **characterised** by updating an object attribute of the new object in the source system (owner, the first system).

11. A method according to claim 1, **characterised** by creating the new object in each relevant system based on object templates.

12. A method according to claim 1, **characterised** by deleting an object by deleting the object in all relevant systems.

13. A method according to claim 12, **characterised** by deleting an object by deleting a defined object in each system.

14. A method according to claim 13, **characterised** by deleting an object by deleting object connections (links) to a deleted object or deleted defined object.

15. A computer program for retrieving and accessing data stored in a plurality of systems arranged for operating part of one or more electrical power networks comprising software code portions or computer code to cause a computer or

processor to carry out the steps of a method according any of claims 1-14.

16. A computer program product recorded on a computer readable medium which when read into a computer or processor will cause the computer or processor to carry out a method according to any of the steps of claims 1-14.

17. A computer-based system for retrieving and accessing data stored in a plurality of systems arranged for operating part of one or more electrical power networks, **characterised** in that said computer-based system comprises a plurality of databases and a data communication network and which system includes an HMI providing navigation and access to at least one SCADA system and/or database as well as to any system and/or database from the list of: ERP, GIS, CMMS,WO,WMS, PM,
- means for establishing the consistency of accessed or retrieved data in the relevant systems by means of mapping the new object using a model based on a structured text document, and
- one or more members for checking the consistency of attributes of any data so accessed or retrieved data by identifying the or each new or given object and/or copies of the new or given object in any separate system and comparing attributes of all such copies of the same new or given object from each of the separate systems.

18. A computer-based system according to claim 17, **characterised** by comprising one or members for: adding a new object; automatically establishing a connection between said relevant systems and the new object; and for replicating data related to the new object to other systems and relevant systems.

19. A computer-based system according to claim 18, **characterised** by comprising one or members for: maintaining object connections; providing connection or connections by means of a layer with a structured text document protocol; and

mapping the new object by means of a structured text document model.

20. A computer-based system according to claim 19, **characterised** in that any of: the structured text document protocol layer, or the structured text document means for mapping the new object are implemented with a CIM/XML model.

21. A computer-based system according to claim 17, **characterised** by a virtual asset register.

22. A computer-based system according to claim 21, **characterised in** that said asset register comprises a list of power network assets which list comprises in turn cross reference and mapping data for objects represented and/or stored in a SCADA system as well as in any system from the list of: GIS system, ERP system, CMMS system.

23. A computer-based system according to any of claims 21-22, **characterised** that said asset register comprises a list of references for all objects representing individual items of physical and/or logical equipment comprised in the one or more parts of the said power network.

24. A computer-based system according to claim 23, **characterised** in that the list comprises a master list of all objects in the one or more parts of the said power network together with the mapping data for each object according to a CIM model.

25. A computer-based system according to claim 24, **characterised** in that object data for the objects comprised in the master list of the asset register is stored in at least one separate system including any of a system for: SCADA, GIS, CMMS, ERP, PM, WO.

26. A computer-based system according to claim 24, **characterised** in that the asset register is a virtual asset

register, which does not comprise any object data for the
objects comprised in the master list and comprises only link
information or cross reference data or mapping data.

27. A computer-based system according to claim 17,
characterised by a virtual asset register implemented
according to an XML or CIM model or document.

28. A computer-based system according to claim 17,
characterised by an HMI that may comprise object data accessed
or retrieved or stored in a SCADA system and/or database as
well object data originating in any system and/or database
from the list of: ERP, GIS, CMMS, WO, PM.

29. A computer-based system according to claim 17,
characterised in that it comprises a human-machine interface
for retrieving and accessing data stored in a plurality of
systems arranged for operating part of one or more electrical
power networks, which HMI comprises a display including data
accessed or retrieved from or stored in a SCADA system, and
also comprising data accessed or retrieved from or stored in
any from the list of: GIS system, ERP system, CMMS system, PM
system, WO system.

30. A computer-based system according to claim 29,
characterised in that the human-machine interface comprise at
least one graphical user interface with means for manipulation
of the data retrieved from or stored in the SCADA and any of
the systems for GIS and/or ERP and/or CMMS.

31. A computer-based system according to claim 29,
characterised in that said human-machine interface reads out
any object property independent of source.

32. A computer-based system according to claim 29-31,
characterised in that the human-machine interface comprise
means to provide access to simultaneous data stored in or held

by any of the list of: SCADA system, GIS system, ERP system, CMMS system, PM system, WO system.